

### REMARKS

Reconsideration and withdrawal of the rejection of the claims, in view of the amendments and remarks herein, is respectfully requested. Claims 1, 3, 43, 50, 55-66, 65, and 69-71 are amended. Claims 1-12, 14-56, 63-67, and 69-73 are pending.

Claims 1, 3, 6-8, 12, 14-15, 22-24, 33-36, 38-44, 47, 49-52, 54-56, 65-67, and 69 were rejected under 35 U.S.C. § 112, first paragraph, as lacking enablement. This rejection, as it may be maintained with respect to the pending claims, is respectfully traversed.

In particular, the Examiner asserts that the specification, while being enabling for a method for determining luminescence energy produced by a first and second luciferase-mediated luminescence reaction wherein at least one of the luciferases is anthozoan and the luminescence generated by the anthozoan luciferase is selectively quenched by coelenterazine hh methyl ester; colored compounds that absorb red, yellow, green and blue wavelengths of light as disclosed on page 31, lines 11-19 of the specification; and nonionic detergents that are not polyethylene glycol octylphenylether or polyoxyethylene sorbitan monolaurate prior to initiating the second luminescent reaction, and a kit thereof, does not reasonably provide enablement for the method or kit wherein the first enzyme mediated reaction is provided by any possible substrate analog inhibitor for an anthozoan luciferase or a protected coelenterazine or any possible colored compound.

The Examiner also asserts that Sherf et al. (U.S. Patent No. 5,744,320) do not address the discovery of selective quench agents for a dual reporter assays based on *Renilla* luciferase as the first reporter and firefly luciferase as the control, and without some disclosure regarding the active site, the skilled artisan could not predict which compounds based on the disclosed generic structure would be inhibitors and not substrates for an anthozoan luciferase.

Clarification on the status of claims 70-73, submitted with the Amendment filed on April 9, 2008, is respectfully requested, as those claims are not rejected.

Moreover, the Examiner is requested to note that, based on what the Examiner asserts is enabled, claims 44, 55 and 56 are enabled. That is because claims 44, 55 and 56 recite anthozoan luciferase, and a nonionic detergent that is not polyethylene glycol octylphenylether or polyoxyethylene sorbitan monolaurate or a yellow colored compound. If claims 44, 55 and 56

are not enabled, further clarification is respectfully requested with the next official communication.

Given Applicant's disclosure that substrate analog inhibitors of luminescence reactions, e.g., protected coelenterazines that are substrate analog inhibitors of an anthozoan luciferase, nonionic detergents and certain colored compounds, for instance, those that quench red, blue or green light, can inhibit luminescence mediated by enzymes such as an anthozoan luciferase without substantially inhibiting a subsequent luminescence reaction, i.e., those agents are selective quench reagents, it is within the skill of the art to identify specific protected coelenterazines that are substrate analog inhibitors, specific nonionic detergents and specific colored compounds that quench red, blue or green light, other than those in the working examples in the specification, that are selective quench reagents for an anthozoan luciferase-mediated luminescence reaction.

Although Sherf et al. (U.S. Patent No. 5,744,320) disclose agents that selectively quench a firefly luciferase-mediated reaction, Sherf et al. evidence that identifying selective quench reagents for enzyme-mediated luminescence reactions is within the skill of the art.

Moreover, contrary to the Examiner's assertion, detailed knowledge of the active site of an enzyme is not needed to practice Applicant's invention. Methods to determine whether an agent is an inhibitor or a substrate for an enzyme were well known to the art prior to Applicant's invention. See, e.g., Denberg et al. (Arch. Biochem. Biophys., 134:381 (1969) (of record); Filippova et al. (Biochem. (Moscow), pp. 1130-1335 (1983) (of record); Farace et al. (J. Clin. Chem. Clin. Biochem., 28:471 (1990) (copy enclosed); and White et al. (J. Org. Chem., 31:1484 (1966) (copy enclosed).

Further, the Examiner cannot reasonably be contended that a program to locate biomolecules with target biological or physical properties would not be carried out by the art because the results cannot be predicted in advance.

In fact, the Federal Circuit has explicitly recognized that the need, and methodologies required, to carry out extensive synthesis and screening programs to locate biomolecules with particular properties do not constitute undue experimentation. In re Wands, 8 U.S.P.Q.2d 1400, 1406-1407 (Fed. Cir. 1988), the Court stated:

The nature of monoclonal antibody technology is that it involves screening hybridomas to determine which ones secrete antibody with desired characteristics.

Practitioners of this art are prepared to screen negative hybridomas in order to find one that makes the desired antibody.

Likewise, practitioners in the art related to the present application would be well-equipped to screen various agents to identify those that selectively quench an anthozoan luciferase-mediated reaction but not another enzyme-mediated luminescence reaction. See also, Hybritech Inc. v. Monoclonal Antibodies Inc., 231 U.S.P.Q. 81, 84 (Fed. Cir. 1986) (evidence that screening methods used to identify characteristics [of monoclonal antibodies] were available to art convincing of enablement). Thus, the fact that a given claim may encompass a variety of quenching agents is not dispositive of the enablement issue, particularly in an art area in which the level of skill is very high and in which screening of large numbers of compounds has been standard practice for at least ten years (Ex parte Forman, 230 U.S.P.Q.2d 456 (Bd. App. 1986)).

Therefore, withdrawal of the § 112(1) rejection is respectfully requested.

**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6959 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

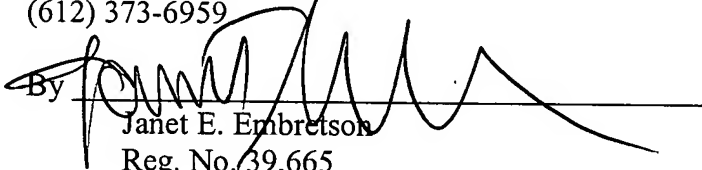
Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402  
(612) 373-6959

Date

November 6, 2008

By

  
Janet E. Embretson  
Reg. No. 39,665

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 6th day of November, 2008.

Name

Dawn M. Poole

Signature

Dawn M. Poole